

Application Serial No. 10/572,901
Reply to office action of February 4, 2008

PATENT
Docket: CU-4701

Amendments To The Abstract

Marked-up Version

Please delete the abstract in the specification at page 1. The following marked-up version of the amended Abstract is attached hereto to aid the examiner in identifying the changes:

~~Provided are a voltage-controlled digital analog oscillator and a frequency synthesizer using the same, the oscillator comprising an oscillator having a frequency of an output signal being determined by a voltage inputted to an analog input end and a digital value inputted to a digital input end; and a digital tuner for comparing the voltage inputted to the analog input end to first and second threshold voltages and changing the digital value inputted to the digital input end according to the result, whereby it is possible to obtain a broadband frequency output with less noise.~~

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REMARKS/ARGUMENTS

Reconsideration is respectfully requested.

Claims 1-20 are pending before this amendment. By the present amendment, claims 1, 2, 12 and 13 are amended. No new matter has been added.

The abstract of the disclosure stands objected under MPEP § 608.01(b) because the abstract is not on a separate page. The applicants have subsequently amended the specification to assure the abstract being on a separate page. Accordingly, the examiner is respectfully requested to withdraw this objection to the abstract.

Claim 2 stands objected under 35 U.S.C. § 112, ¶2 as being indefinite because the "2's multiple number of" phase is indefinite. The applicants have subsequently amended claim 2 to remove this "2's multiple number" phase and have replaced it with "a plurality of". Therefore, the applicant's submit that the basis for this objection to claim 2 has been removed. Accordingly, the examiner is respectfully requested to withdraw this objection to claim 2.

Claims 1, 6-8, 12, 13 and 15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,496,556 (Huehne). The "et al." suffix is omitted in a reference name.

The applicants traverse this anticipation rejection, and submit that the claims, as they now stand are in allowable form.

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The examiner's attention is respectfully directed towards the following emphasized limitation of independent claims 1 and 12, as amended which now require a *-C-divider adapted to generate a periodic pulse signal (PC) from a reference frequency to drive the digital tuner-*.

The applicants respectfully submit that Huehne does not teach or disclose the above-emphasized limitation now required in independent claims 1 and 12.

In contrast to the presently claimed invention, Huehne discloses a step-down clock control having a clock sequence generator (190) that provides a non-linear step down function that steps from fast to slower frequencies that causes a counter (110) to drive a tank circuit of a voltage control oscillator (VCO 130) to eventually achieve a frequency lock at a relatively rapid rate (See e.g., Huehne's abstract and FIG. 2). Huehne does this by using a divider 132 that outputs an output signal (FBK CLK) from the VCO 130 (See FIG. 2) into a phase frequency detector (PFD 150) that feeds an analog signal to a low pass filter (LPF 135). The LPF (135) that in turn sends an analog signal to the VCO (130) and to a window comparator threshold detector (120) coupled with an n-BIT counter (110) that compares analog input (157) with an upper reference voltage (col. 4, lines 6-7) and with a lower reference voltage (col. 4, line 10). Nowhere in Huehne does Huehne disclose, teach, or even suggests using a C-divider adapted to generate a periodic pulse signal (PC) from a reference frequency to drive the digital tuner.

As per MPEP §2131, a cited reference must teach each and every claimed

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limitation of an invention to render the claimed invention anticipated. Since Huehne does not disclose or teach a C-divider adapted to generate a periodic pulse signal (PC) from a reference frequency to drive the digital tuner, then Huehne cannot support an anticipation rejection to independent claims 1 and 12. Therefore, the applicants submit that independent claims 1 and 12 as amended, are in allowable form. Accordingly, the examiner is respectfully requested to withdraw this anticipation rejection to independent claims 1 and 12.

Claims 6, 7, 8, 13, and 15 depend upon either independent claim 1 or independent claim 12, and as such, incorporate by reference all of the claim limitations contained therein, including the above-emphasized limitation that has already been shown to be absent from Huehne. Accordingly, dependent claims 6, 7, 8, 13, and 15 are also believed to be in allowable form as being dependent upon their respective allowable base claims. Therefore, the examiner is respectfully requested to withdraw this anticipation rejection to dependent claims 6, 7, 8, 13, and 15.

Claims 2 and 14 stand rejected under 35 U.S.C. § 103(a) as being obvious over Huehne in view of the Prior Art and in view of U.S. Patent No. 6,803,829 (Duncan). The "et al." suffix is omitted in a reference name.

The applicants traverse this anticipation rejection, and submit that the claims, as they now stand are in allowable form.

The examiner's attention is again respectfully directed towards the above-emphasized limitation now required in independent claims 1 and 12, as amended.

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The applicants respectfully submit that Huehne, the Prior Art and Duncan, in whole or in combination, do not teach, suggest or disclose the above-emphasized limitation now required in independent claims 1 and 12, as amended.

The above comments concerning Huehne are equally applicable here in that Huehne is silent with regards to the above-emphasized limitation now required in independent claims 1 and 12, as amended.

The cited Prior Art (FIG. 1) and Duncan are also silent with regards to disclosing a C-divider adapted to generate a periodic pulse signal (PC) from a reference frequency to drive the digital tuner.

Duncan is only used by the office action to teach a coarse/fine tuning VCO having inductors, capacitors and NMOS configuration. Duncan does appear to teach inductors (L 4509) coupled to a power supply (VDD) and coupled to variable capacitors (4515). Duncan also appears to teach NMOS's (M1 and M2) having sources, drains and gates connected to the first, second and a third node (See e.g., FIG. 45-I). Further, Duncan is also silent with regards to the above-emphasized limitation now required in independent claims 1 and 12, as amended.

In contrast to the presently claimed invention, Duncan teaches a circuit that includes a VCO having a pair of driver transistors and a tank circuit; and a tuning control circuit configured to produce a sliding voltage window coupled to the tank circuit for adjusting the frequency range of the VCO (See Duncan Abstract and Claim 1). Further, the sliding voltage having a fixed voltage magnitude with a center that is responsive to

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temperature. This is quite different than the presently claimed invention, inter alia, for example by not having a C-divider, nor having a N-divider, nor having a digital tuner driven by the C-divider.

Therefore, the applicants submit that Huehne, the Prior Art and Duncan, in whole or in combination, do not teach, suggest or disclose the above-emphasized limitation now required in independent claims 1 and 12, as amended.

As per MPEP §2143.03, the combined cited references must teach all of the claimed limitations to render a claimed invention obvious. Since Huehne, the Prior Art and Duncan, in whole or in combination, do not teach, suggest or disclose the above-emphasized limitation now required in independent claims 1 and 12, as amended, then Huehne, the Prior Art and Duncan, in whole or in combination, cannot support an obviousness rejection to independent claims 1 or 12.

Claims 2 and 14 depend upon either independent claim 1 or independent claim 12, and as such, incorporate by reference all of the claim limitations contained therein, including the above-emphasized limitation that has already been shown to be absent from Huehne, the Prior Art and Duncan. Accordingly, dependent claims 2 and 14 are also believed to be in allowable form as being dependent upon their respective allowable base claims. Therefore, the examiner is respectfully requested to withdraw this obviousness rejection to dependent claims 2 and 14.

In the office action, claims 3-4, 9, 10, 11 and 16 stand being objected to as being dependent upon a rejected base claim. The applicants have elected to amend the

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respective independent claims, i.e., claims 1 and 12 in order to render these claims allowable as being dependent upon an allowed base claim.


In the office action, claims 17-20 stand allowed. The applicants gratefully acknowledge and thank the examiner for allowing claims 17-20.

For the reasons set forth above, the applicants respectfully submit that claims 1-20, now pending in this application, are in condition for allowance over the cited references. Accordingly, the applicants respectfully request reconsideration and withdrawal of the outstanding rejections and earnestly solicit an indication of allowable subject matter.

This amendment is considered to be responsive to all points raised in the office action. Should the examiner have any remaining questions or concerns, the examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,

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